

FRIEDMAN & BRUYA, INC.**ENVIRONMENTAL CHEMISTS**

Date of Report: January 10, 1996
Date Received: December 28, 1995
Project: Acid Samples, PO #51771
Date Samples Extracted: January 3, 1996
Date Extracts Analyzed: January 4, 1995

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS BY
INDUCTIVELY COUPLED PLASMA (ICP)
(METHOD 6010)**

**Samples Processed Using Method 3005
Results Reported as mg/L (ppm)**

<u>Sample ID</u>	<u>M51771A Large Tank</u>	<u>M51771B Small Tank</u>	<u>Method Blank</u>
Analyte:			
Arsenic	6	9	<1
Cadmium	<0.5	<0.5	<0.5
Chromium	1,300	1,400	<0.5
Lead	1	5	<1
Iron	6,100	6,400	<10
Silver	<0.5	<0.5	<0.5
Copper	73	250	<0.5
Nickel	710	1,000	<0.5
Zinc	0.6	<0.5	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: January 10, 1996

Date Received: December 28, 1995

Project: Acid Samples, PO #51771

QUALITY ASSURANCE RESULTS FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Laboratory Code: 65468 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Arsenic	mg/L (ppm)	9	9	0	0-20
Cadmium	mg/L (ppm)	<0.5	<0.5	nm	0-20
Chromium	mg/L (ppm)	1,400	1,500	7	0-20
Lead	mg/L (ppm)	5	5	0	0-20
Iron	mg/L (ppm)	6,400	6,800	6	0-20
Silver	mg/L (ppm)	<0.5	<0.5	nm	0-20
Copper	mg/L (ppm)	250	250	0	0-20
Nickel	mg/L (ppm)	1,000	1,100	10	0-20
Zinc	mg/L (ppm)	<0.5	<0.5	nm	0-20

Laboratory Code: Spike Blank

Analyte:	Reporting Units	Spike Level	% Recovery		Acceptance Criteria	Relative Percent Difference
			MS	MSD		
Arsenic	mg/L (ppm)	10	102	104	80-120	2
Cadmium	mg/L (ppm)	5	103	105	80-120	2
Chromium	mg/L (ppm)	5	105	106	80-120	1
Lead	mg/L (ppm)	10	103	105	80-120	2
Iron	mg/L (ppm)	10	104	104	80-120	0
Silver	mg/L (ppm)	2	98	101	50-150	3
Copper	mg/L (ppm)	5	103	104	80-120	1
Nickel	mg/L (ppm)	10	104	100	80-120	4
Zinc	mg/L (ppm)	5	103	103	80-120	0

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: January 10, 1996
Date Received: December 28, 1995
Project: Acid Samples, PO #51771
Date Extracts Analyzed: January 4, 1996

**RESULTS FROM THE ANALYSIS OF PROCESS WATER SAMPLES
FOR SPECIFIC GRAVITY
@ 15.56 °C**

<u>Sample ID</u>	<u>Specific Gravity</u>
M51771A Large Tank	1.07
M51771B Small Tank	1.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: January 10, 1996

Date Received: December 28, 1995

Project: Acid Samples, PO #51771

**QUALITY ASSURANCE RESULTS
FOR SPECIFIC GRAVITY
@ 15.56 °C**

Laboratory Code: 65468 (Duplicate)

<u>Analyte:</u>	<u>Sample Result</u>	<u>Duplicate Result</u>	<u>Relative Percent Difference</u>
Specific Gravity	1.08	1.08	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: January 10, 1996
Date Received: December 28, 1995
Project: Acid Samples, PO #51771
Date Extracts Analyzed: January 5, 1996

**RESULTS FROM THE ANALYSIS OF PROCESS WATER SAMPLES
FOR % ACID BY VOLUME**

<u>Sample ID</u>	<u>% Acid By Volume</u>
M51771A Large Tank	5.0
M51771B Small Tank	7.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: January 10, 1996

Date Received: December 28, 1995

Project: Acid Samples, PO #51771

**QUALITY ASSURANCE RESULTS
FOR % ACID BY VOLUME**

Laboratory Code: 65468 (Duplicate)

<u>Analyte:</u>	<u>Sample Result</u>	<u>Duplicate Result</u>	<u>Relative Percent Difference</u>
% Acid by Volume	7.0	7.0	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

January 10, 1996

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Enclosed are the results from the testing of material submitted on December 28, 1995 from your Acid Samples, PO #51771 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Kurt Johnson
Chemist

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Enclosures
FAX: 382-7335
ACU0110R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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January 10, 1996

INVOICE # 96ACU0110-2
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Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project Acid Samples, PO #51771: Results of testing requested by Gerry Thompson, Project Manager for material submitted on December 28, 1995.

2 water samples analyzed for Total Metals by Method 6010 @ \$115 per sample	\$ 230.00
2 process water samples analyzed for Specific Gravity @ \$25 per sample	50.00
2 process water samples analyzed for % Acid By Volume @ \$25 per sample	<u>50.00</u>
Amount Due	\$ 330.00